

Congestion Mitigation & Air Quality Project

***Nashua Citywide Traffic Management System,
Nashua #14432,
CM-X-A000(372)***

Public Informational Meeting

January 24, 2012

City of Nashua

NHDOT

Vanasse Hangen Brustlin, Inc.



Agenda

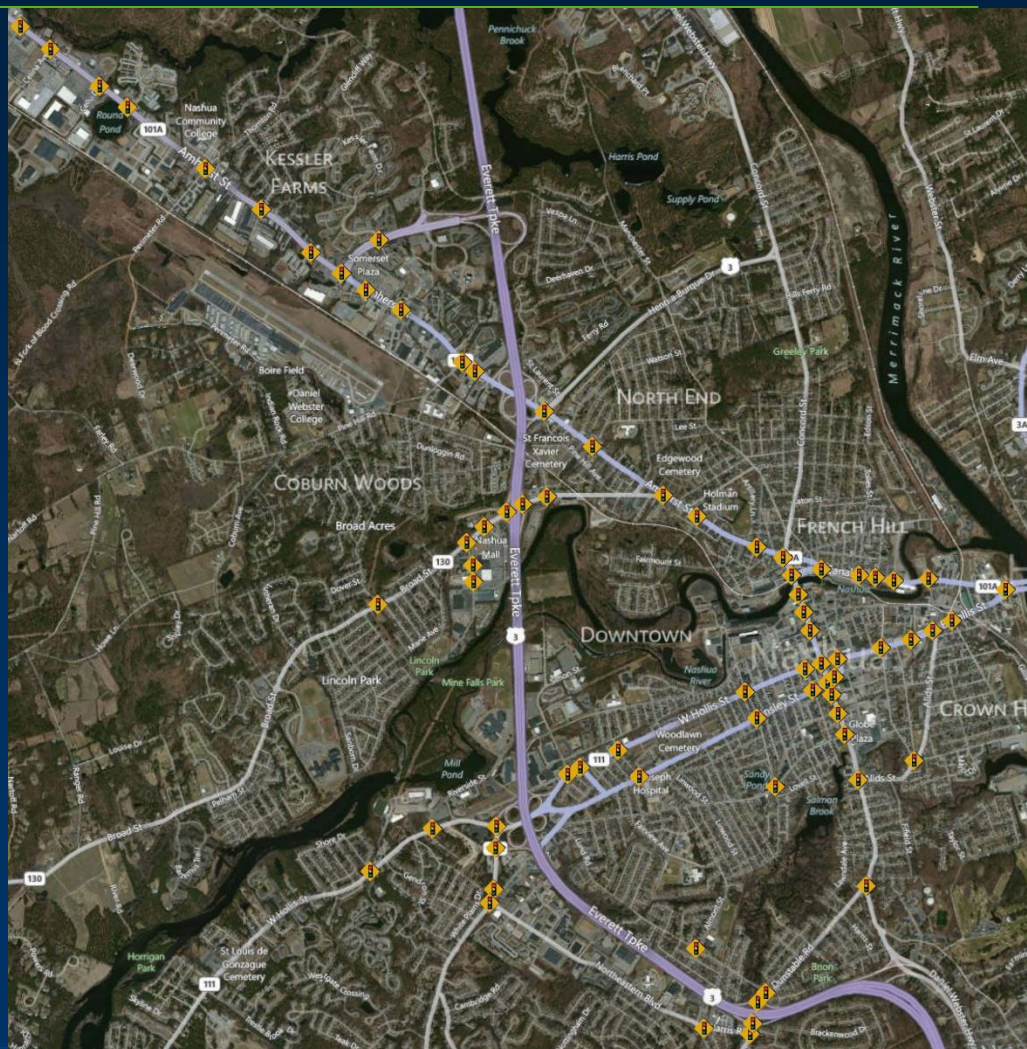
- Project Purpose and Need
- Project Area
- Existing Conditions
- Project Objectives – Operations and Design
- Project Costs
- Project Schedule
- Questions and Comments

Purpose and Need

- Improve Air Quality
- Improve Traffic and Pedestrian Operations and Increase Mobility
- Update Existing Signal Equipment 10 to 20+ Years Old (w/MUTCD Compliance)

Project Area

- Amherst Street
- Broad Street
- Canal Street
- Coliseum Boulevard
- East Dunstable Road
- East Hollis Street
- Kinsley Street
- Main Dunstable Road
- Main Street
- West Hollis Street



Existing Conditions

EQUIPMENT

- 5 Intersections – 1970's based technology
- 3 Intersections – 1980's based technology
- 55 Intersections – 1990's based technology
- 5 Intersections – Modern technology
 - Both signalized intersections along Coliseum Boulevard
 - Main Street at Otterson Street
 - Main Street at East Dunstable Road
 - Amherst Street at the Charlotte Pedestrian Crossing

Existing Conditions

OPERATIONS

- 30% (21 Intersections, Amherst Street and Main Street) coordinated by means of time-based control
- Poor Levels of Service (LOS) at numerous coordinated and uncoordinated intersections

Existing Conditions

SAFETY

- 1,298 crashes (433/year average) at signalized intersections over most recent 3-year period
- Primary High Crash Locations
 - W. Hollis St./Main Dunstable/FEET (26/year)
 - Main St./Franklin St./Canal Street (18/year)
 - Amherst St./Charron Avenue (17/year)
 - Main St./Hollis Street (17/year)
 - Library Hill (16/year)
 - Main St./Kinsley St./SNH Med. Drive (15/year)
 - Amherst St./Somerset Parkway (15/year)

Existing Conditions

MUTCD COMPLIANCE

- No Intersections Presently Comply with 2009 Manual of Uniform Traffic Control Devices
 - No Countdown PED Timers (66 Intersections)
 - Clearance Times (Yellow, Red, and Pedestrian) need to be revised
 - Deficient Pedestrian and Vehicle Indications

Design Objectives – Traffic Operations

- Analysis shows improved traffic operations at approximately 60 of 68 project intersections
 - Decrease in vehicle delay
 - Shorter vehicle queues
 - Improved “Levels of Service”
 - Reduced fuel consumption (850 gal/day) and vehicle emissions (10%)
- Results meet Purpose and Need “increased mobility and pedestrian - vehicle operations” with anticipated lower crash rate

Design Objectives – Safety

- National Statistics – “Half of all crashes and half of all injuries occur at intersections.”
- FHWA – Strategic Safety Plan Guides with documented “countermeasures” and their effectiveness.
- Signal countermeasures provided by this project forecast up to a 40% reduction in vehicle crashes.

Design Objectives – Countermeasures

- Provide Updated Signal Coordination.
- Add Retroreflective Signal Backplates For Improved Visibility.
- Add Supplemental Signal Heads.
- Add APS/Countdown Pedestrian Signals.
- Update Yellow, All-Red, and Pedestrian Clearance Timing.
- Apply Strategic Lead/Lag Left-Turn Signal Phasing.

Design Objectives – Crash Reductions

- Augusta Signal Modernization (19)
 - 2002-2007 – 94,89,92,82,82,81 crashes
 - 2008 /9– 51 & 54 crashes (37% reduction)
 - Rear-end/Sideswipe type of crash that average 30 per year prior were reduced to 17 crashes (45% reduction)
 - Personal Injuries reduced from an average of 34/year to 16 injuries (53% reduction)

Design Objectives – Alternatives Considered

- Analytical Results Support Project
- Alternative Designs:
 - Time Based Coordination with Existing Equipment
 - Fiber Optic Interconnection + MUTCD
 - Hybrid New Fiber Interconnect + MUTCD and Reuse Existing Copper Interconnect (where applicable)

Design Objectives – Preferred Alternative

- Signal Coordination through a Combination Aerial and Underground Fiber Optic Interconnect and Reused Copper Interconnect Cable.
- All Project Signals Grouped with Timings and Phasings Optimized Based on 2012 Traffic Volumes.

Design Objectives – Preferred Alternative

- Remote Computer Control and/or Monitoring from Nashua Traffic



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Design Objectives – Preferred Alternative

- New Traffic Signal Controllers
- New Malfunction Management Units (MMU's)
- Ethernet Based Fiber or DSL Switches
- Wireless Radio

Design Objectives – Preferred Alternative

■ New Traffic Control Cabinets



Existing Pole & Base Mount “P-38” Type
(50” x 25” x 17” or 54”x 38”x 28”)



Proposed “P-44” Type
(64”x 44”x 26”)

Design Objectives – Preferred Alternative

- Updated Intersection Devices
 - L.E.D. Red /Yellow /Green
 - Astro-Bracket Mounting on Mast Arms

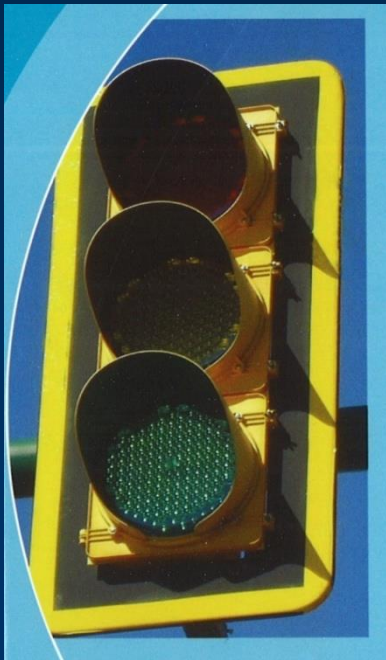


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Design Objectives – Preferred Alternative

- Updated Intersection Control
 - Retro-reflective Backplates



* Retro-reflective backplates are being considered in areas other than the Downtown CBD (Main Street)

Design Objectives – Preferred Alternative



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Design Objectives – Preferred Alternative

- Updated Pedestrian Facilities
 - Countdown Pedestrian Signals
 - APS Buttons (Select Locations)
 - Informational Signs



Design Objectives – Preferred Alternative

- Quantities to Satisfy the Preferred Alternative
 - Up to 42,000 LF of new cable
 - Up to 4 new wireless radios
 - Up to 68 new on-street Ethernet switches
 - Up to 68 new traffic signal controllers
 - Up to 68 new MMU's
 - Up to 18 new traffic control cabinets
 - Updated signal timings at 68 intersections

Design Objectives – Preferred Alternative

- Quantities to Satisfy MUTCD requirement of the Preferred Alternative
 - Up to 50 new traffic signal heads
 - Up to 310 new pedestrian signal heads
 - Up to 35 new pedestrian signal posts
 - Up to 1,500 LF of new underground conduit
 - Up to 150 new pedestrian buttons (15% APS)
 - Updated clearance intervals at 68 locations

Project Costs

- \$2,300,000 in funding secured
 - \$1,840,000 Federal Funds
 - \$460,000 Local Match
 - With potential increase in Federal Funds to cover unanticipated CE costs
- Engineer's Estimate of Preferred Alternative = \$3,300,000

Project Costs

- Phase I project 49 intersections (~B/C ratio)
 - Broad Street (40:1)
 - East Hollis Street (30:1)
 - Amherst Street east of FEET (24:1)
 - Amherst Street west of FEET (19:1)
 - Main Street and Elm Street (15:1)
 - Canal Street (10:1)

Project Costs

- Phase II
 - Main Dunstable Road (14:1)
 - East Dunstable Road
and Northeastern Boulevard (13:1)
 - West Hollis Street west of FEET (13:1)
 - West Hollis Street/Kinsley
east of FEET (12:1)
 - Pine Street/W. Hollis St. to Lake St. (12:1)

Project Costs

- Phase II (continued)
 - East Hollis/Bridge/Ferry intersection (11:1)
 - Almont/Lund intersection (9:1)
 - Coliseum Boulevard (4:1)
 - Allds/Marshall/Burke/Harbor intersection (3:1)
- Phase II project (19 intersections)
\$1.0 million estimated costs

Project Schedule

- June 1, 2011 – Project Engineering Initiated
- August 2011 – Conceptual Design Completed
- January 12, 2012 – Public Informational Meeting
- January 24, 2012 – 2nd Public Informational Meeting
- End of January – Preliminary Design to be Completed
- May 2012– Final Design & Certifications
- End of June 2012 – Advertise Project
- August 2012 – Contractor Selected/Construction
- December 2013 – Construction Completed (18 mo.)

THANK YOU
FOR
YOUR INTEREST